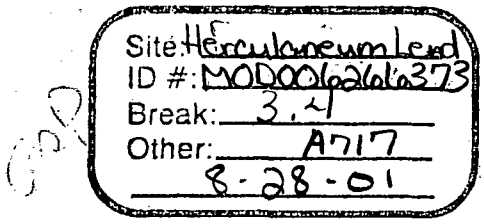
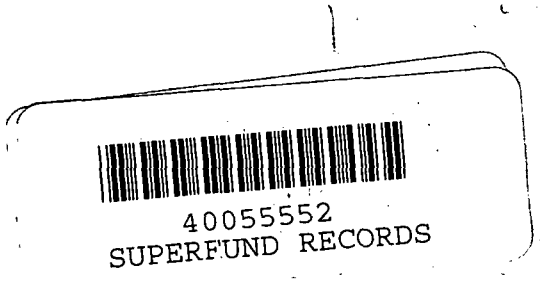
SITE SAFETY & HEALTH PLAN



DOE RUN COMPANY
Herculaneum, Missouri



August 28, 2001

THE DOE RUN COMPANY
SITE SAFETY & HEALTH PLAN

Adopted By: _____ Date: _____
Tony Patruska, Environmental Protection Agency, Project Manager

Adopted By: _____ Date: _____
Dave Mosby, Missouri Department of Natural Resources, Project Manager

Adopted By: Jim Lanzafame Date: 09/20/01
Jim Lanzafame, The Doe Run Company Project Manager

[redacted]

Date: September 19, 2001

Project Name: Herculaneum Residential Excavation and Restoration
The Doe Run Company
Herculaneum, Missouri

Adopted By: _____ Date: 9/20/01
Environmental Restoration Project Manager

Adopted By: _____ Date: _____
Environmental Restoration Manager of Safety

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OPTIONAL ATTACHMENTS

HAZARDS AND SOPS ASSOCIATED WITH:

F Heavy Equipment Operations

G Excavation

___ Other:

GLOSSARY OF ACRONYMS

ANSI	- AMERICAN NATIONAL STANDARDS INSTITUTE
APR	- AIR PURIFYING RESPIRATOR
ACGIH	- AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS
CFR	- CODE OF FEDERAL REGULATIONS
CGI	- COMBUSTIBLE GAS INDICATOR
CLEAN ZONE	- SUPPORT ZONE
CSEP	- CONFINED SPACE ENTRY PERMIT
DECON	- DECONTAMINATION
HNU-PID	- HNU PHOTOIONIZATION DETECTOR
HOT ZONE	- EXCLUSION ZONE
IAW	- IN ACCORDANCE WITH
IDLH	- IMMEDIATELY DANGEROUS TO LIFE & HEALTH
MREM/hr	- MILLI-ROENTGENS EQUIVALENT IN MAN PER HOUR
NIOSH	- NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY & HEALTH
OSHA	- OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION LIMIT
OVA	- ORGANIC VAPOR ANALYZER
PAPR	- POWERED AIR PURIFYING RESPIRATORS
PEL	- PERMISSIBLE EXPOSURE LIMIT
PPM	- PARTS PER MILLION
RM	- PROJECT MANAGER
SCBA	- SELF-CONTAINED BREATHING APPARATUS
SOP	- STANDARD OPERATING PROCEDURE
SPCC	- SPILL PREVENTION CONTROLS & COUNTERMEASURES
TLV	- THRESHOLD LIMIT VALUE
TWA	- TIME WEIGHTED AVERAGE
U.S. EPA	- U.S. ENVIRONMENTAL PROTECTION AGENCY

1.0 INTRODUCTION AND SITE ENTRY REQUIREMENTS

This document describes the health and safety guidelines developed for the Herculaneum Residential Lead Site, to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes. The procedures and guidelines contained herein were based upon the best available information at the time of the plan's preparation. Specific requirements will be revised when new information is received or conditions change. A written amendment will document all changes made to the plan. Any amendments to this plan will be included in Attachment A. Where appropriate, specific OSHA standards or other guidance will be cited and applied.

All work practices and procedures implemented on site must be designated to minimize worker contact with hazardous materials and to reduce the possibility of physical injury. All work will be performed in accordance with applicable Federal 29CFR 1910 and 1926 Health and Safety Regulations and the Federal 29CFR 1910.120 Hazardous Waste Site Safety Regulations.

1.1 Daily Safety Meetings

Daily safety meetings will be held at the start of each shift to ensure that all personnel understand site conditions and operating procedures, to ensure that personal protective equipment is being used correctly and to address worker health and safety concerns.

1.2 Site Safety Plan Acceptance Acknowledgment

The Project Manager shall be responsible for informing all individuals entering the exclusion zone or decontamination zone of the contents of this plan and ensuring that each person signs the Safety Plan Acknowledgment Form in Attachment Z. By signing the Safety Plan Acknowledgment Form, individuals are recognizing the potential hazards present on-site and the policies and procedures required to minimize exposure or adverse effects of these hazards.

1.3 Key Personnel

Principle Contractor:	Environmental Restoration L.L.C. 16333 Westwoods Business Park St. Louis, Missouri
Project Manager:	Jim Davis
Safety Manager:	Dennis Greaney

2.0 ROLES AND RESPONSIBILITIES

2.1 Project Manager (PM): Jim Davis

The Project Manager, as the field representative for ERLLC and its subcontractors, has the responsibility for fulfilling the terms of the contract. The PM must oversee the project and ensure that all technical, regulatory and safety requirements are met. The Project Manager is the on site Health and Safety Officer (HSO) when the HSO is not on site. The Project Manager is responsible for the duties listed in Section 2.2.

2.2 Site Health and Safety Officer (HSO): Jim Davis

The ERLLC Site Safety Officer will be assigned to the site on a full-time basis with functional responsibility for implementing the Site Health and Safety Plan as it applies to ERLLC personnel.

Specific Duties Include:

a. Assume responsibility for health and safety of personnel.
b. Supervise confined space entries.
c. Document safety problems.
d. Supervise decontamination of personnel and equipment.
e. Ensure that monitoring equipment is calibrated/operational.
f. Conduct personal air monitoring on all employees as outlined in 29CFR 1910.120(h)(4).
g. Perform respiratory fit tests.
h. Inventory/inspect PPE prior to personnel entries.
i. Prepare summary letter of personal air sampling results.
j. Select protective equipment levels based upon chemical properties, method of contact and air sample results.
k. Prepare and maintain OSHA Log within 3 days of accident.
l. Insure all personnel are fit for duty.
m. Competent person for excavation/trench entry jobs.
n. Inspect first aid kits/fire extinguishers/SCBA.

2.3 Other:

Any persons who observe safety problems should immediately report observations/concerns to appropriate key personnel listed in Section 2.1 or 2.2 above.

SUBCONTRACTORS

COMPANY NAME			
CONTACT NAME			
PHONE			
ADDRESS			
SCOPE OF WORK			
TRAINING REQUIRED? *(CHECK ONE)*	❑YES	❑NO	DESCRIBE:
CONTRACTOR PREQUALIFIED?	❑YES	❑NO	

COMPANY NAME			
CONTACT NAME			
PHONE			
ADDRESS			
SCOPE OF WORK			
TRAINING REQUIRED? *(CHECK ONE)*	❑YES	❑NO	DESCRIBE:
CONTRACTOR PREQUALIFIED?	❑YES	❑NO	

COMPANY NAME			
CONTACT NAME			
PHONE			
ADDRESS			
SCOPE OF WORK			
TRAINING REQUIRED? *(CHECK ONE)*	❑YES	❑NO	DESCRIBE:
CONTRACTOR PREQUALIFIED?	❑YES	❑NO	

3.0 SITE BACKGROUND AND SCOPE OF WORK

3.1 Site Background

Herculaneum is a small town located on the Mississippi River approximately 30mile south of the St. Louis area. A large lead smelting operation has existed in town for over 100 years. Residential soils located in and around Herculaneum demonstrate the presence of elemental lead likely from several sources including background, lead based paint, smelter fallout, and residual material from the smelting industry.

3.2 Scope of Work for ERLLC

1) Excavation of impacted soils, placement of barrier fabric as needed, backfill with non-impacted soils, grade, seed and straw.

4.0 TASK SAFETY AND HEALTH RISK ANALYSIS

4.1 Task Specific Hazards and Controls

This section is to be addressed in the daily tool box safety meeting as each task is to be attempted. Each Task-Specific Safety Assessment is designed to develop awareness to chemical and physical hazards specific to each task. It would be impractical to repeat in complete detail each control measure and SOP for each job task. Sources and Hazards will be addressed for each job task with reference made to applicable control measures in Sections 4.2, 4.3 and SOP's. The tables in Section 4.2 and 4.3 should be posted in the break area and command post. When the Task-Specific Safety Assessment are discussed additional hazards may need to be addressed.

TASK SPECIFIC SAFETY ASSESSMENT

JOB TASK: Excavation and Containerization			
PERSONAL PROTECTIVE EQUIPMENT: Level D (with Air Monitoring)			
HAZARD	**SOURCES**	**CONTROL MEASURES**	**REF.**
Heavy Equipment	Back Hoe/Loader	Experienced operators Controlled work area	Att F
Small Equipment	Chain Saws Weedeaters	Experienced Operators Controlled Work Areas	Sect 4.3
Noise	Back Hoe/Loader Chain Saw/Weedeater	Wear proper hearing protection	Sect 4.3
Dermatitis	Poison Ivy/Oak	Beware of plants Avoid Contact	
Topography	Uneven terrain/debris	Keep area organized Beware of slips, trips and falls	Sect 4.3
Chemical	Lead	Avoid contact Controlled work area	Sect 4.2
Wildlife	Insect/Ticks Dogs/Snakes	Beware of and Avoid contact	Sect 4.3
Ergonomics	Lifting and bending	Buddy system Proper lifting and bending	Sect 4.3
Punctures	Sharp Objects Brush	Beware of sharp objects	Sect 4.3

[redacted]

TASK SPECIFIC SAFETY ASSESSMENT

JOB TASK: Building Decontamination			
PERSONAL PROTECTIVE EQUIPMENT: To Be Determined			
HAZARD	**SOURCES**	**CONTROL MEASURES**	**REF.**

TASK SPECIFIC SAFETY ASSESSMENT

JOB TASK:			
PERSONAL PROTECTIVE EQUIPMENT:			
HAZARD	**SOURCES**	**CONTROL MEASURES**	**REF.**

4.2 Chemical Hazards

[redacted]							
Lead	.05 $^{mg}/_{m3}$	Dust	N/A	Inhalation Ingestion	Nitrile	Chronic	Fresh Air Flush with Water

The above listing should not be taken as a complete assessment of the hazards posed by materials at the Herculaneum Residential Lead Site. Therefore, personnel must be alert for symptoms of possible exposure such as unusual smells, stinging, burning eyes, nose and throat, skin irritation, as well as feeling extremely well, depressed, sleepy or tired. Symptoms must be immediately reported to the site supervisor.

See Attachment C for Chemical Hazard Information and MSDS'.

4.3 Physical Hazards

PHYSICAL/ENVIRONMENTAL HAZARD ANALYSIS

HAZARD	PRE PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
Cold Stress	1. Anticipate possible low temperatures (winter months). 2. Remember the temperature does not have to be below freezing to have a cold stress situation.	1. Warm break area. 2. Warm decaffeinated drinks. 3. Buddy system/awareness. 4. First aid on site. 5. Medical care if symptoms persist.
Electrical	1. Locate and mark existing energized lines. 2. De-energize lines if necessary to perform work safely. 3. All electrical circuits will be grounded. 4. All 120 volt single phase which are not a part of the permanent wiring will have a ground-fault interrupter in place. 5. Temporary wiring will be guarded, buried or isolated by elevation to prevent accidental contact by personnel or equipment. 6. Evaluate potential for high moisture/standing water areas and define special electrical wiring needs-typically requirement for low voltage lighting systems.	
Ergonomic	1. All operations evaluated for ergonomic impact. 2. Procedures written to define limits of lifting, pulling, etc. 3. Procedures to define how personnel will utilize proper ergonomic concepts and utilize mechanical material handling equipment. 4. Necessary mechanical material handling equipment specified and ordered for project.	1. Proper body mechanics techniques stressed and enforced on a daily basis. 2. Mechanical handling equipment maintained and utilized. 3. Proper body mechanics stressed in scheduled safety meetings. 4. Injuries reported and medically treated if in doubt about severity. 5. Operations changed as necessary based on Injury experience or potential.
Existing Site Topography	1. Survey site prior to layout. Identify areas unsafe for personnel or equipment due to physical conditions. 2. Identify/locate existing utilities. 3. Determine impact of site operations on surrounding properties, communities, etc. 4. Identify mechanized equipment routes both on site and onto and off the site. 5. Layout site into exclusion and contamination reduction zones based on initial site evaluation.	1. Awareness to work environment - regular inspection/audits to identify changing conditions. 2. Shut down operations when unknown conditions encountered.
Fires & Explosions	1. Evaluate all operations for fire and explosion potential. 2. Define specific procedures for unique operations presenting unusual hazard such as flammable tank demolition. 3. Ensure that properly trained personnel and specialized equipment is available. 4. Define requirements for handling and storage of flammable liquids on site, need for hot work permits and procedures to follow in the event of fire or explosion. 5. Define the type and quantity of fire suppression equipment needed on site. 6. Coordinate which local fire fighting agencies to discuss unique fire hazards, hazardous materials, etc. 7. Ensure site operations comply with 29CFR 1910.157G.	1. Inspect fire suppression equipment on a regular basis. 2. Store flammables away from oxidizers and corrosives. 3. Utilize Hot Work Permit for all hot work on site. 4. Follow any site specific procedures regarding work around flammables. 5. Review and practice contingency plans. Discuss on regular basis at scheduled safety
Flammable Vapor and Gases	1. Evaluate site to determine sources of likely flammable gas or vapor generation. 2. Develop specific procedures to be followed in the event of exposure to flammables. 3. Specify specialized equipment needs for inerting flammable atmospheres, ventilating spaces and monitoring flammable vapor concentrations. 4. Define requirements for intrinsically safe equipment.	1. Calibrated monitoring equipment available and utilized by trained personnel whenever working where flammable gas or vapor is present. 2. Monitoring performed at regular frequency and in all areas where vapor could generate or pool. 3. Equipment and operations shut down when

[redacted]

PHYSICAL/ENVIRONMENTAL HAZARD ANALYSIS

HAZARD	PRE PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
	5. Develop contingency plan to follow in the event of fire or	threshold levels are exceeded. 4. Contingency plans reviewed regularly by all involved personnel. 5. Work areas are carefully inspected to look for possible ignition sources. Sources are removed. 6. Operations shut down if specific task procedures can't be followed to the letter.
Heavy Equipment Operation	1. Define equipment routes and traffic patterns for site. 2. Insure that operators are properly trained on equipment operation for all equipment required on project. 3. Define safety equipment requirements, including back up alarm and roll over, for all equipment on site. 4. Define equipment routes and traffic patterns for site. 5. Implement SOP of requiring operators to safety inspect equipment on a daily basis in accordance with manufacturer requirements. 6. Evaluate project requirements to ensure that equipment of adequate capacity is specified.	1. Equipment inspected as required. Equipment repaired or taken out of service. 2. Ground spotters are assigned to work with equipment operators. Utilize standard hand signals and communication protocols. 3. Personnel wear the proper PPE, utilize hearing protection, gloves for handling rigging, etc. 4. Equipment safety procedures discussed at daily scheduled safety meetings. 5. Personnel do not exceed lifting capacities, load limits, etc. for equipment in question. 6. Personnel follow basic SOP's which prohibit passengers on equipment, activating brakes and grounding buckets, securing loads prior to movement, etc.
Illumination	1. Evaluate all operations and work areas to determine lighting requirements. 2. Specify specialized lighting requirements including explosion proof, intrinsically safe, lighting needs. 3. Determine if nighttime outdoor operations are necessary. Evaluate tasks to be performed and number of light plants necessary to allow operations. 4. Ascertain if outdoor lighting from nighttime operations will have an impact on surrounding communities.	1. Inspect specialized equipment and discard or replace as needed. 2. Add additional lighting to areas with lighting deficiencies. 3. Inspect drop cords and portable lights on regular basis. Replace or repair as necessary.
Noise	1. Local community noise standards examined. 2. Expected loud operations evaluated to determine compliance with community standards. 3. Loud operations scheduled for approved time periods. 4. Noise level standards established for equipment brought onto site. 5. Hearing protection requirements defined for personnel expected to have excessive exposures.	1. Personnel receive annual audiogram. 2. Personnel required to wear hearing protection. 3. Routine noise level monitoring and dosimetry performed. 4. Defective equipment repaired as needed. 5. Ongoing hearing conservation education promoted at scheduled safety meetings. 6. Medical evaluation following noise (impact) exposure if symptoms present themselves.
Personal Injuries	1. Site operations will be evaluated for exposures with serious injury potential such as falling objects, pinch points, flying objects, falls from elevated surfaces, etc. 2. A written Fall Prevention Program will be developed if workers will be required to work at heights greater than 10 feet from unguarded work locations. 3. PPE requirements will be based on potential for injury.	1. Personnel will wear required PPE. 2. Specialized equipment such as rope grabs, winches, etc. will be inspected prior to each use. Defective equipment will be immediately replaced. 3. All injury and near miss incidents will be reported to the HSO. 4. First aid/CPR trained person on site at all times. 5. All injuries will be treated on site with advanced medical treatment being sought if doubt about severity.
Radiation	1. Evaluate potential for exposure to radioactive materials. 2. If likely, develop specialized training program for personnel. 3. Develop plan and specify equipment for monitoring potential radiation sources.	1. Perform monitoring as defined in safety plan. 2. Perform necessary calibration and maintenance on monitoring equipment. 3. Employees participate in health physics monitoring program.

PHYSICAL/ENVIRONMENTAL HAZARD ANALYSIS

HAZARD	PRE PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
	4. Establish health physics dosimetry program. 5. If not likely, implement SOP of stopping work should any sign of radioactive materials become apparent.	4. Notify Project Manager when suspect materials are detected.
Small Equipment Usage	1. Site operations evaluated to determine need for specialized intrinsically safe, explosion-proof and UL approved equipment and instruments. 2. Implement requirement for G.F.I., double insulated tool usage, or assured grounding program in all outdoor operations, will be utilized. 3. Specify equipment needs to ensure that equipment used only for the purpose for which it is designed and to prevent abuse or misuse of the equipment. 4. Specify requirements for the inspections and maintenance of specialized equipment. 5. Specify that all equipment utilized on the project meets all OSHA requirements.	1. First aid on site. 2. Transport for medical care if necessary.
Wildlife	1. Inspect work environment where tasks are being performed. 2. Awareness to bites. 3. Dogs, animals, poison ivy, etc.	1. First aid on site. 2. Seek medical attention if symptoms-signs
Trenching and Excavation	1. Implement Smith excavation procedures if entry required into any excavation greater than 4 feet depth. 2. Specify that Competent Person(s) assigned to project be present at all times personnel inside trench(s). 3. Specify that a Professional Engineer design specialized shoring systems for those that are extremely deep. 4. Specify special PPE and monitoring requirements for excavations in soils contaminated with hazardous materials or gases and vapors. 5. Ensure excavations comply with 29CFR 1926, Subpart P.	1. Competent person in the immediate area at all times that personnel are required to enter trenches. 2. Operations shut down if the excavation shows any sign of cave in, excessive water, unacceptable levels of toxic contaminants, changing weather, or shoring systems have visible defects. 3. Equipment operators keep all personnel inside excavation in sight. No suspended loads or movement of buckets over personnel. 4. Regular monitoring is performed in excavations where toxic gases or vapors are possible.
Weather Conditions	1. Evaluate prevailing weather conditions for the site. 2. Contingency plans developed for likely severe weather conditions such as tornado, and extreme thunderstorm. 3. Provide for daily weather forecast service in extreme weather areas. 4. Plan to weatherize safety systems, such as showers and eye washes, that would be impacted by extreme cold weather. 5. Order necessary specialized cold weather clothing. 6. Grounding and bonding requirements defined for thunderstorm areas. 7. Sheltered air conditioned break areas provided for extreme hot and cold weather zones.	1. Employees trained in contingency plan for severe weather conditions. 2. Emergency water sources inspected regularly in cold areas. 3. Weather service contacted regularly during storm conditions. 4. Supervisory personnel cease operations during extreme storm conditions (i.e., thunderstorms). Personnel evacuate to safe assembly area.

5.0 PERSONNEL TRAINING

5.1 Initial Training

a. 40 Hour Training
All field employees receive forty hours of classroom training on safe work practices and hazardous waste sites.

b. Supervisor/Managers

Manager and Supervisors receive eight hours of training on safe management of hazardous waste sites. All training complies with 29CFR 1910.120.

The following individuals are Site Supervisors:
[1] Jim Davis, Tim Bland, Cecil Lawson

5.2 Site Specific Training

1. All assigned personnel will receive site specific training (review of this document) on routes of exposure and adverse health effects associated with the chemicals listed on the attachment.

2. At least one member of each work crew shall have training in the use of portable fire extinguishers in accordance with 29CFR 1910.157G.

3. IAW 29CFR 1910.120, all personnel newly assigned to hazardous waste work will receive 3 days of on the job training by an experienced supervisor. This typically is achieved by coordinating the work schedule so that they perform 25% of the expected workload the first day; 50% the second day, and 75% the third day.

4 Annual Refresher
All field employees receive eight hours of refresher training on the above topics within the anniversary date of their initial 40 hour class.

5.1 First Aid/CPR All field supervisors receive first aid training. Treatment limited to Good Samaritan/minor first aid. All traumatic/major first aid, and cardiac problems will be referred to medical facilities.

5.2 Subcontractor Requirements All subcontractors entering the contamination reduction zone and exclusion zone will have adequate training satisfying 29 CFR 1910.120.

6.0 PERSONAL PROTECTIVE EQUIPMENT

The following is a brief description of the personal protective equipment which may be required during various phases of the project. The U.S. EPA terminology for protective equipment will be used; Levels A, B, C and D.

Respiratory protective equipment shall be NIOSH-approved and use shall conform to OSHA 29 CFR Part 1910.134 Requirements. Each employer shall maintain a written respirator program detailing selection, use, cleaning, maintenance and storage of respiratory protective equipment. The written Respirator Program will be maintained at the local and regional offices.

6.1 Level A Protection Shall Be Used When: (NOT ANTICIPATED)
- The extremely hazardous substance requires the highest level of protection for skin, eyes and the respiratory system;
- Substances with a high degree of hazard to the skin are known or suspected;
- Chemical concentrations are known to be above IDLH levels; or,
- Biological hazards requiring Level A are known or suspected.

6.2 Level B Protection Shall Be Used When: (NOT ANTICIPATED)
- The substance(s) has been identified and requires a high level of respiratory protection but less skin protection;
- Concentrations of chemicals in the air are IDLH or above the maximum use limit of an APR with full-face mask;

- Oxygen deficient or potentially oxygen deficient atmospheres (<19.5%) are possible; and/or,
- Confined space entry may require Level B.
- Incomplete identification of gases and vapors, but not suspected to be harmful to skin or skin absorbable.

6.3 Level C Protection Shall Be Used When:

- The same level of skin protection as Level B, but a lower level of respiratory protection is required;
- The types of air contaminants have been identified, concentrations measured, and an air-purifying respirator is available that can remove contaminants; or,
- The substance has adequate warning properties and all criteria for the use of APR respirators has been met.

6.3.1 Level C Protective Equipment at a Minimum Shall Consist of:

Protective Gear - Level C	(Check and list required type)
MSA Air Purifying Respirator or PAPR	Fullface
Cartridges (type)	GMC-H
Escape Mask	
Chemical Resistant/Protective Coveralls (type)	Tyvek
Full Body Apron or Other (type)	
Inner Gloves	Nitrile/Latex
Outer Chemical Gloves (type)	Nitrile
Safety shoes/Boots (type)	Steel Toed
Hard Hat	X
Respiratory Inserts	
Other (List ____)_____	
Modifications:	Use leather gloves when handling sharp objects.

6.4 Level D Protection Shall Be Used When:

- The atmosphere is demonstrated to be within OSHA permissible limits
- Work functions preclude splashes, immersion or the potential for unexpected inhalation of, or contact with, hazardous concentrations of harmful chemicals.

[redacted]

6.4.1 Level D Protection Equipment at a Minimum Shall Consist of:

Protective Gear - Level D	(Check and list required type)
Chemical Resistant/Protective Coveralls (type)	Coveralls
Rain Suit	
Safety Shoes/Boots (type)	Steel Toed
Boot Covers (booties)	
Work Gloves (type)	
Hard Hat	NIOSH approved
Face Shield	
Safety Glasses	
Modifications:	

Specific operating procedures for PPE and Respiratory Protection are in Attachment D.

6.5 Decisions to Upgrade/Downgrade PPE

[1] All decisions to downgrade from Level B to C or D must be accompanied by air monitoring results. The Regional Safety Managers must be advised of on-site decisions to downgrade. All decisions must be documented with an Addendum to the Plan.

[2] The following conditions will necessitate reevaluation of PPE use.

a. commencement of a new work not previously identified
b. change of job tasks during a work phase
c. change of season/weather
d. contaminants other than those identified in Safety Plan
e. change in ambient levels of contaminants
f. change in work which affects degree of chemical contact

7.0 MEDICAL SURVEILLANCE

7.1 Pre-Employment Physical

a. Pre-employment and periodic update medical examinations are required for persons working at hazardous waste sites.
b. All physicals must be completed and documented prior to assignment to this site.
c. All physical exams will be conducted following parameters established by the respective employee's Corporate Physicians.

7.2 Site Specific Physical Examination

a. N/A
b. N/A
c. A current Fitness for Duty statement will be kept on site for all [redacted] personnel.

7.3 Annual Physical Exam The medical examination must have been within a 12-month period prior to on-site activity and repeated annually.

7.4 Accidental/Suspected Exposure Physical

a. Following any accidental or suspected uncontrolled exposure to site contaminants, personnel should be scheduled for a special physical examination.
b. The physical examination will be specific for the contaminants and the associated target organs or physiological system.
c. N/A
d. Questions regarding the type of physical can be directed to ERLLC's Director of Health and Safety or the ERLLC Corporate Physician.

7.5 Contractor Physical Examination Requirements

All subcontractors entering the contamination reduction or exclusion zone will have adequate medical surveillance satisfying 29CFR 1910.120.10 (f).

7.6 Site Documentation

All personnel on-site must have the following documentation available on site:

[1] Copy of 40 hour certificate
[2] Copy of Manager's/Supervisor's 8 hour certificate
[3] Copy of 8 Hour Annual Refresher (if > 12 months since 40 hour)
[4] CPR/First Aid Certificate (annual)
[5] Respirator Fit Test (annual)
[6] Medical Fitness For Duty

8.0 AIR MONITORING AND ACTION LEVELS

According to 29 CFR 1910.120 (h) Air Monitoring shall be used to identify and quantify airborne levels of hazardous substances and health hazards in order to determine the appropriate level of employee protection needed on-site.

8.1 Routine Air Monitoring Requirements

- Initial personnel air monitoring to determine need for respiratory protection.

Air monitoring will consist at a minimum of the criteria listed below. All air monitoring data will be documented and available in the command post site files for review by all interested persons. Air monitoring instruments will be calibrated and maintained in accordance with the manufacturer's specifications.

8.2 Site Specific Air Monitoring Requirements

INSTRUMENT	COMPOUNDS TO DETECT	FREQUENCY	COMMENTS/ ACTION LEVEL
Combustible Gas Indicator (CGI)	Explosive/ Flammable Atmospheres	N/A	> 10% LEL
PID/FID	Organic Vapors and Gases	N/A	Unidentified contaminants* < Background units - Level D Background-5 units - Level C 5-500 units - Level B
Asbestos/Fiber Monitoring	Asbestos	N/A	> 0.01 fibers/cc for PCM > 70 structures/mm^2 for TEM > 1% asbestos/weight bulk sample
Jerome Mercury Analyzer	Mercury Vapors	N/A	> .025 mg/m^3
Detector Tubes	Various	N/A	
Radiation Meter	Radiation	N/A	> 2 mR/hr
Oxygen Meter	Oxygen	N/A	<19.5% and >23.5% O^2

* The reading must be sustained for one (1) minute in the breathing zone.

8.3 Personnel Monitoring

Explain strategy or why not required: Representative personnel will be monitored in order to document that the level of protection is adequate.

8.3.1 Sampling Methods (media type, analyses, NIOSH Method Number, etc.): NIOSH Method 7300

8.3.2 Describe calibration procedures: Pre and post

8.3.3 Analytical laboratory to be used: Industrial Testing Labs

8.4 Noise Monitoring: [ ] Yes [X] No

Describe monitoring strategy:

8.5 Heat Stress Monitoring: [ ] Yes [X] No

Describe monitoring strategy:_____

Perimeter: [ ] Yes [X] No

Describe:_____

8.6 Other: [ ] Yes [X] No

Describe:_____

8.7 Name(s) of Monitoring Technician(s):

Jim Davis

8.8 Location of Monitoring Records:

Copies of monitoring records will be retained in the job file upon the completion of the job. Additional copies will be maintained in the Health and Safety Department.

9.0 SITE CONTROL AND STANDARD OPERATING PROCEDURES

9.1 Work Zones

The primary purpose for site controls is to establish the hazardous area perimeter, to reduce migration of contaminants into clean areas and to prevent access or exposure to hazardous materials by unauthorized persons. At the end of each workday, the site should be secured or guarded, to prevent unauthorized entry. Site work zones will include residential properties during access and previous to excavation, open excavations, and residential properties during restoration operations.

Because the site logistics entail the contamination zone being residential properties occupied at the time of remediation, zone designation will not follow normal hazardous waste site operational guidelines. The Clean Zone, Contamination Reduction Zone and Contamination Zone will not be cordoned off as separate entities.

9.1.1 Clean Zone/Support Zone

This uncontaminated support zone or clean zone will be the area outside the exclusion and decontamination zones and within the geographic perimeters of the site. This area is used for staging of materials, parking of vehicles, office and laboratory facilities, sanitation facilities, and receipt of deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, etc., who will not necessarily be permitted in the exclusion zone. All personnel arriving in the support zone will upon arrival, report to the command post and sign the site entry/exit log. There will be one controlled entry/exit point from the clean zone to the decontamination zone.

[1] Location of Clean Zone

9.1.2 Decontamination Zone

The decontamination zone will provide a location for removal of contaminated personal protective equipment and final decontamination of personnel and equipment. All personnel and equipment should exit via the decon area. A separate decontamination area will be established for heavy equipment.

[1] The decontamination zone is a buffer zone between contaminated and clean areas.
[2] Identified by yellow banner guard.
[3] Decon line is located _____To Be Determined

9.1.3 Exclusion Zone/Hot Zone

The exclusion zone will be the "hot-zone" or contaminated area inside the site perimeter. Entry to and exit from this zone will be made through a designated point and all personnel will be required to

sign the hot zone entry/exit log located at the decon area. Appropriate warning signs to identify the exclusion zone should be posted (i.e. "DANGER - AUTHORIZED PERSONNEL ONLY", "PROTECTIVE EQUIPMENT REQUIRED BEYOND THIS POINT", etc.) Exit from the exclusion zone must be accompanied by personnel and equipment decontamination as described in Section 10.0.

[1] Will be identified by red banner guard.
[2] These areas will be defined by Red banner guard

[3] General Safety Rules for Exclusion Zone
- a. wear the appropriate level of PPE defined in plan
- b. do not remove any PPE or break the integrity to pick, scratch, or touch parts of your body
- c. no smoking, eating or drinking
- d. no horseplay
- e. no matches or lighters in this zone
- f. implement the communication and line of sight system

9.2 General Field Safety Rules

- All visitors must be sent to the command post.
- It is ERLLC policy to practice administrative hazard control for all site areas by restricting entrance to exclusion zones to essential personnel and by using operational SOPs.
- Whenever possible, avoid contact with contaminated (or potentially contaminated) surfaces. Walk around (not through) puddles and discolored surfaces. Do not kneel on the ground or set equipment on the ground. Stay away from any waste drums unless necessary. Protect equipment from contamination by bagging.
- Eating, drinking, or smoking is permitted only in designated areas in the support zone.
- Hands and face must be thoroughly washed upon leaving the decon area.
- Beards or other facial hair that interferes with respirator fit will preclude admission to the hot zone.
- All equipment must be decontaminated or discarded upon exit from the exclusion zone.
- All personnel exiting the exclusion zone must go through the decontamination procedures described in Section 10.0.
- Safety Equipment described in Section 6.0 will be required for all field personnel.
- Personnel will only travel in vehicles where individual seats (for each occupant are provided. Seat belts will be worn as required.
- Fire extinguishers will be available on site and in all areas with increased fire danger such as the refueling area.

- A minimum of two personnel will always be on site whenever heavy equipment is operated. Only necessary personnel need to be on or around heavy equipment.
- Employees will not interfere with or tamper in any way with air monitoring equipment.
- Backhoes or other equipment with booms shall not be operated within 10 feet of any electrical conductor.
- Visitor log will be maintained at the command post or with the security guard. All personnel coming on site will sign in and out on a daily basis.
- Security will be maintained at the site by closing all gates during normal work hours. Site will be locked up in the evening.
- If unauthorized members of the public are found on site, contact PM immediately and do not leave the individual unattended.
- Visitors are not allowed in the work areas without authorization. Visitors must sign in at the Command Post and receive authorization to enter the site.
- Buddy System

  [1] The buddy system is mandatory at anytime that personnel are working in the exclusion zone, remote areas, on tanks, or when conditions present a risk to personnel.
  [2] A buddy system requires at least two trained/experienced people who work as a team and maintain at a minimum audible and/or visual contact while operating in the exclusion zone.

- *Communication Procedures*

  [1] Radios will be used for on site communications and Channel 2 will be the designated channel.
  [2] The crews should remain in constant radio or visual contact while on site.
  [3] The site evacuation signal will be 3 blasts on the air or vehicle horn.

10.0 DECONTAMINATION PROCEDURES

In general, everything that enters the exclusion zone at this site, must either be decontaminated or properly discarded upon exit from the exclusion zone. All personnel, including any state and local officials must enter and exit the hot zone through the decon area. Prior to demobilization, contaminated equipment will be decontaminated and inspected before it is moved into the clean zone. Any material that is generated by decontamination procedures will be stored in a designated area in the exclusion zone until disposal arrangements are made.

NOTE: The type of decontamination solution to be used is dependent on the type of chemical hazards. The decontamination solution for this site is water. Decontamination solution will be changed daily (at a minimum) and collected and stored on-site until disposal arrangements are finalized.

10.1 Procedures for Equipment Decontamination

Following decontamination and prior to exit from the hot zone, the Project Manager shall be responsible for insuring that the item has been sufficiently decontaminated. This inspection shall be included in the site log.

Equipment decontamination will consist of the following steps:
Clean with water

10.2 Procedure for Personnel Decontamination

This decontamination procedure applies to personnel at this site wearing Level B and C protection. These are the minimum acceptable requirements.

Station 1: Equipment Drop
Deposit equipment used on-site (tools, sampling devices and monitoring instruments, radios, etc.) on plastic drop cloths. These items must be decontaminated or discarded as waste prior to removal from the exclusion zone.

Station 2: Outer Boot and Outer Glove Wash and Rinse
Scrub outer boots, outer gloves and/or splash suit with decontamination solution or detergent water. Rinse off using water.

Station 3: Outer Boot and Glove Removal
Remove outer boots and gloves. If outer boots are disposable, deposit in container with plastic liner. If non-disposable, store in a clean dry place.

Station 4: Outer Garment Removal
If applicable, remove SCBA back-pack and remain on air as long as possible. Remove Chemical Resistant Outer Garments and deposit in container lined with plastic. Decontaminate or dispose of splash suits as necessary.

Station 5: Respiratory Protection Removal
Remove hard-hat, face-piece, and if applicable, deposit SCBA on a clean surface. APR cartridges will be discarded as appropriate. Wash and rinse respirator at least daily. Wipe off and store respiratory gear in a clean, dry location. (See Attachment D)

Station 6: Inner Glove Removal
Remove inner gloves. Deposit in container for disposal.

Station 7: Field Wash
Thoroughly wash hands and face with soap and water. Shower as soon as possible.

Eating, drinking, chewing gum/tobacco, smoking, or any practice that increases the probability of hand to mouth transfer and/or ingestion of materials is prohibited in any areas where the possibility of contamination exists and is permitted only in the designated break area.

Personnel will not wear or bring dirty/decontaminated clothing into the break areas.

10.3 Emergency decontamination will consist of the following steps:
(Any blood contaminated material will be bag, labeled and accompany the individual to the hospital.)

10.4 The following decontamination equipment is required:
Water source on site.

10.5 Disposition of Decontamination Wastes

[1] All equipment and solvents used for decontamination shall be decontaminated or disposed of with the established waste streams.

[2] Commercial laundries or cleaning establishments that decontaminate or are used to launder contaminated clothing shall be informed of the presence and potentially harmful effects of the contaminants.

[3] N/A

11.0 HAZARD COMMUNICATION PROGRAM

Each contractor will be responsible for maintaining a copy of their Hazardous Communication Program and MSDS' on site. The following items are specific to this job site:

11.1 Material Safety Data Sheets

[1] Material Safety Data Sheets will be maintained at the Command Post in the Health and Safety Binder.
[2] MSDS' will be available to all employees for review during the work shift.
[3] See Attachment C and/or the ERLLC Health and Safety Binder.

11.2 Container Labeling

[1] All containers received on site will be inspected by the contractor using the material to ensure the following:
a. all containers clearly labeled
b. appropriate hazard warning
c. name and address of the manufacturer

11.3 The following chemicals were brought to the site:

[1] Alconox
[2] Gasoline
[3] Diesel Fuel
[4] _____
[5]
[6]

11.4 Employee Training and Information

[1] Prior to starting work, each employee will attend a health and safety orientation and will receive information and training on the following:
a. an overview of the requirements contained in the Hazardous Communication Standard
b. Hazardous chemicals present at the site

c. the location and availability of the written Haz Comm Program
d. physical and health effects of the hazardous chemicals
e. methods of preventing or eliminating exposure
f. emergency procedures to follow if exposed
g. how to read labels and review MSDS' to obtain information
h. location of MSDS file and location of hazardous chemical list

See ER's Corporate Health and Safety Binder for Hazard Communication Program and applicable MSDS'.

12.0 EMERGENCIES/ACCIDENTS/INJURIES

It is essential that site personnel be prepared in the event of an emergency. Emergencies can take many forms; illnesses or injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather. The following sections outline the general procedures for emergencies. Emergency information should be posted as appropriate.

12.1 Emergency Contacts for the Herculaneum Residential Lead Site

Fire: 911

Police: 911

Sheriff: 911

Ambulance: 911

Hospital: 636-933-1000

Address: Hwy 61-67 at I 55

Telephone:

Poison Control Center:

*Directions from Site to Hospital (See Map in Attachment B):

Map will be updated in on site vehicles by each individual site.

NOTE: Maps and directions to the hospital will be posted in the office and decon trailers.

The route to the hospital was verified by: on Distance from site to hospital is miles. Approximate driving time is ___ minutes.

The following individuals have been trained in CPR and First Aid:

Tim Bland , Jim Davis_____

_____ _____

_____ _____

12.2 Additional Emergency Numbers

National Response Center	800-424-8802
Center for Disease Control	404-488-4100 (24 hr)
AT&F (Explosives Information)	800-424-9555
Chemtrec	800-424-9300

Environmental Restoration LLC Contacts

ERLLC	888 -814 - 7477 (24 Hr.)
ERLLC (St. Louis)	636 -227 - 7477

12.3 Emergency Equipment Available On-Site

Communications Equipment — Location

Public Telephones: _____

Private Telephones: _____

Mobile Telephones: Jim Davis 314/616-0824

Two-Way Radios: Tim Bland 314/518-6021

Emergency Alarms/
Horns: _____

Medical Equipment
First Aid Kits: Tool Box EE plu Trucks

Inspection Date: _____ By: _____

Stretcher/Backboard: _____

Eye Wash Station: _____
(within 100 feet of hazard zone)
Safety Shower: _____

Fire-Fighting Equipment

Fire Extinguishers: EE plu Trk behind Seat

Inspection Date: _____ By: _____

Other: _____

Spill or Leak Equipment

Absorbent Boom/Pads: _____

Dry Absorbent: _____

Additional Emergency Equipment: _____

12.4 Accident Reporting/Investigations

12.4.1 All injures or accidents must be reported to the Project Manager or Site Safety Officer immediately.

12.4.2 The Project Manager will contact ERLLC Health/Safety by telephone immediately. The District Health/Safety Manager will conduct an immediate investigation of the accident and document all results on the Supervisor's Accident Investigation Report and State Worker's Compensation Form.

12.4.3 The Project Manager will complete the First Report of Injury and FAX a copy to ERLLC Health/Safety immediately.

12.4.4 The Project Manager will assign a supervisory individual to accompany all injured personnel to the clinic and follow guidelines outlined in the ERLLC Return to Work Program.

12.4.5 Copies of all Supervisor's Accident Reports will be sent to the ERLLC Director of Health and Safety.

13.0 EMERGENCY RESPONSE CONTINGENCY PLAN

13.1 Project Personnel Responsibilities During Emergencies

PROJECT MANAGER (RM)

As the administrator of the project, the PM has primary responsibility for responding to and correcting emergency situations. The PM will:

- Take appropriate measures to protect personnel including: withdrawal from the exclusion zone, total evacuation and securing of the site or up-grading or down- grading the level of protective clothing and respiratory protection.
- Take appropriate measures to protect the public and the environment including isolating and securing the site, preventing run-off to surface waters and ending or controlling the emergency to the extent possible.
- Ensure that appropriate Federal, State and local agencies are informed, and emergency response plans are coordinated. In the event of fire or explosion, the local fire department should be summoned immediately. In the event of an air release of toxic materials, the local

authorities should be informed in order to assess the need for evacuation. In the event of a spill, sanitary districts and drinking water systems may need to be alerted.

- Ensure that appropriate decon treatment or testing for exposed or injured personnel is obtained.
- Determine the cause of the incident and make recommendations to prevent the recurrence.
- Ensure that all required reports have been prepared.

13.2 Medical Emergencies:

Any person who becomes ill or injured in the exclusion zone must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket.) First aid should be administered while awaiting an ambulance or paramedics. All injuries and illnesses must immediately be reported to Health and Safety.

Any person transporting an injured/exposed person to a clinic or hospital for treatment should take with them directions to the hospital and information on the chemical(s) they may have been exposed to. This information is included in Table 4.2. Any vehicle used to transport contaminated personnel, will be cleaned or decontaminated as necessary.

13.3 Fire or Explosion:

In the event of a fire or explosion, the local fire department should be summoned immediately. Upon their arrival the RM or designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on- site.

If it is safe to do so, site personnel may:

- Use fire fighting equipment available on site.
- Remove or isolate flammable or other hazardous materials which may contribute to the fire.

13.4 Spills, Leaks or Releases:

In the event of a spill or a leak, site personnel will:

- Locate the source of the spillage and stop the flow if it can be done safely.
- Begin containment and recovery of the spilled materials.

13.5 Evacuation Routes and Resources:

Evacuation routes have been established by work area locations for this site. All buildings and outside work areas have been provided with two designated exit points. Evacuation should be conducted immediately, without regard for equipment under conditions of extreme emergency. See site map for evacuation routes.

- Evacuation notification will be three blasts on an air horn, vehicle horn, or by verbal communication via radio.
- Keep upwind of smoke, vapors or spill location.

- Exit through the decontamination corridor if possible.
- If evacuation is not via the decontamination corridor, site personnel should remove contaminated clothing once they are in a location of safety and leave it near the exclusion zone or in a safe place.
- The PM will conduct a head count to insure all personnel have been evacuated safely.
- In the event that emergency site evacuation is necessary, all personnel are to:

  1. Escape the emergency situation;
  2. Decontaminate to the maximum extent practical; and,
  3. Meet at the command post.

- In the event that the command post is no longer in a safe zone, meet:

  Putting Green/Car Wash

14.0 CONFINED SPACE

A confined space is defined as a space or work area not designed or intended for normal human occupancy, having limited means of access and poor natural ventilation, and or any structure, including buildings or rooms which have limited means of egress. Examples include tanks, vats, and basements. Confined spaces identified at this site are listed below. If a confined space entry is conducted, it will be done in accordance with procedures presented in Attachment ___.

There is an open sump on site but there are no present plans to address it.

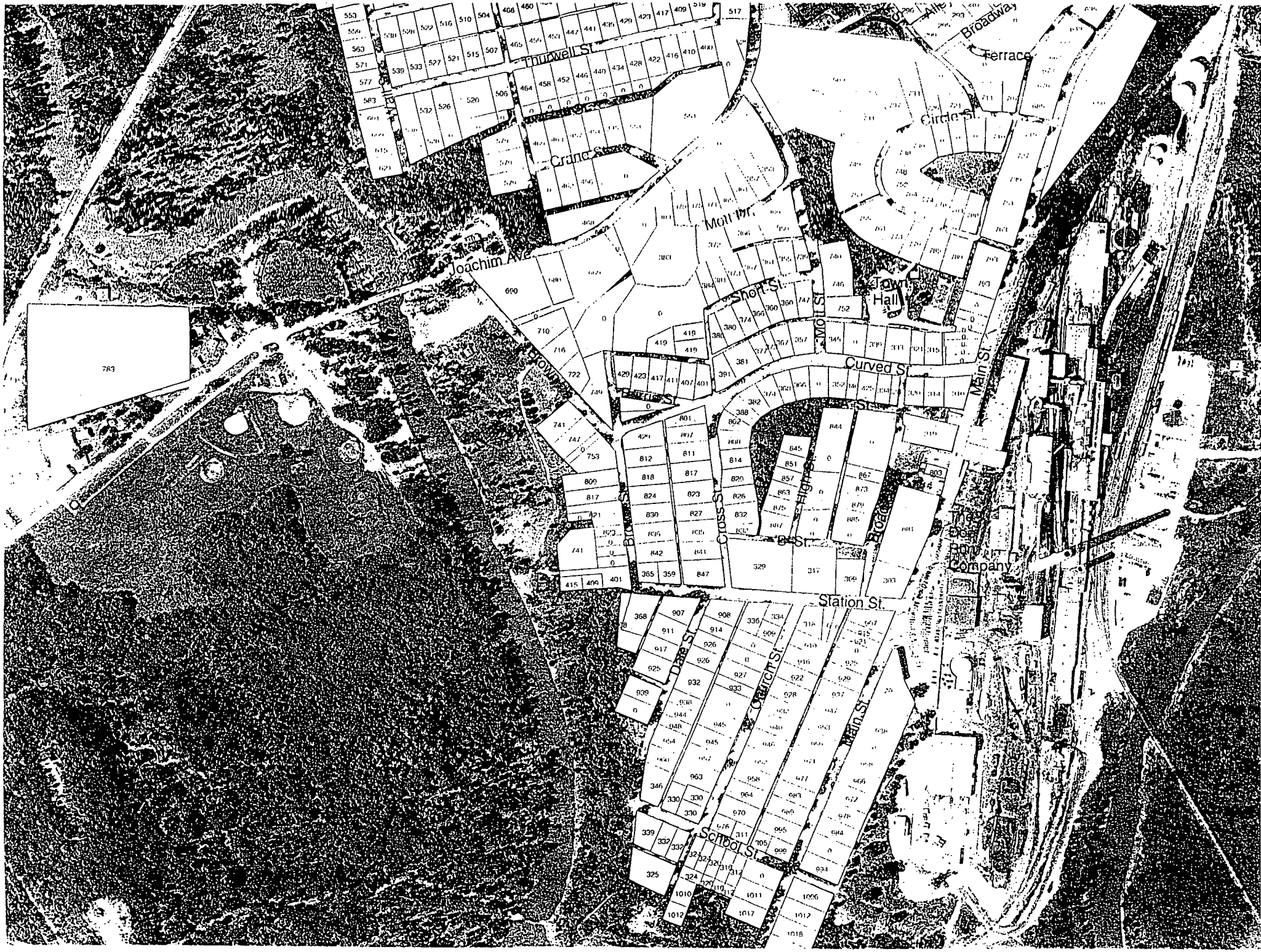
SITE SAFETY PLAN AMENDMENT #	
SITE NAME:	
DATE:	
TYPE OF AMENDMENT:	
REASON FOR AMENDMENT:	
ALTERNATE SAFEGUARD PROCEDURES:	
REQUIRED CHANGES IN PPE:	

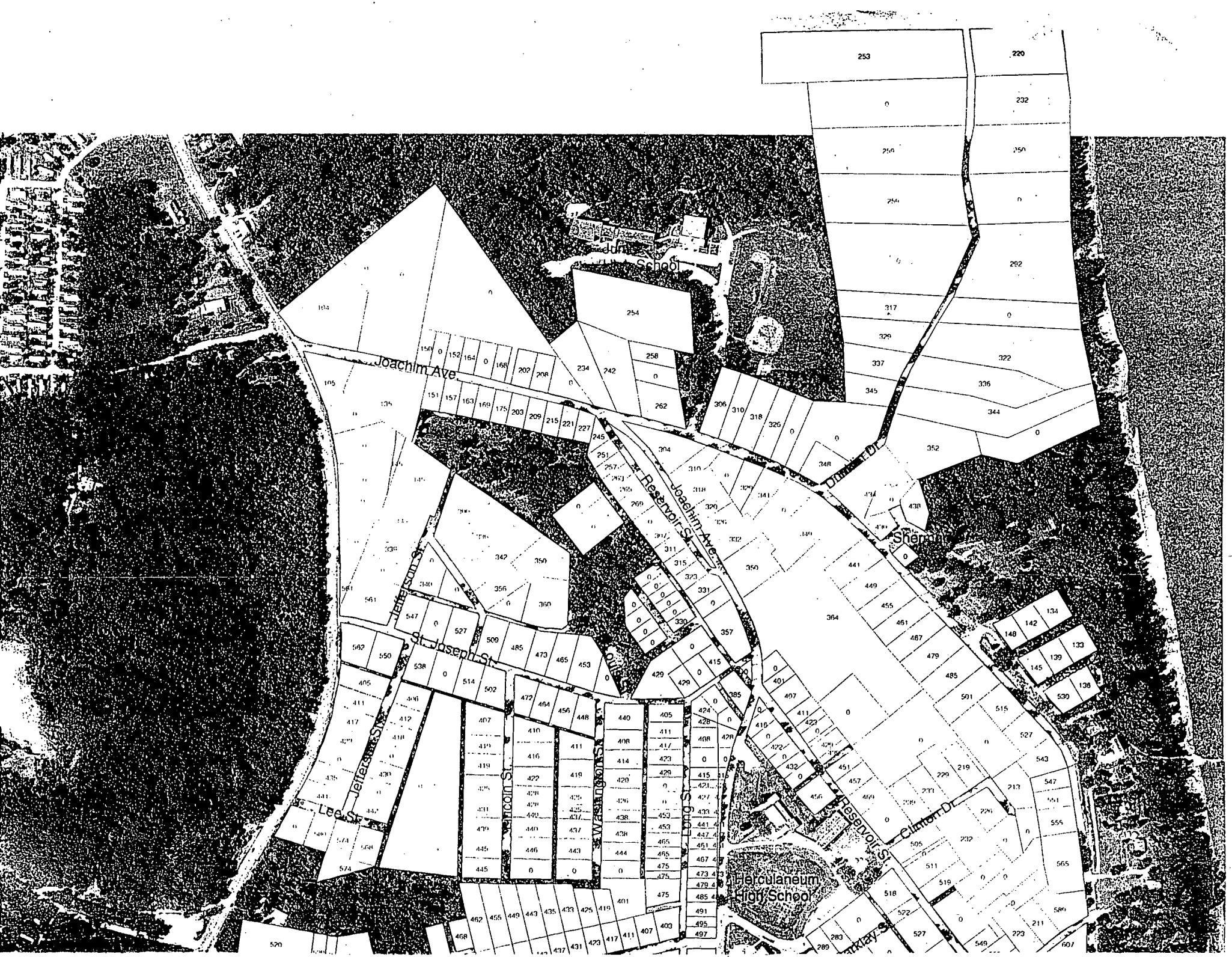
_____ _____
ERLLC Project Manager (Date)

_____ _____
ERLLC Safety Manager (Date)

ATTACHMENT B

SITE MAPS


Thurwell St.
Crane St.
Mott Pr.
Joachim Ave
Short St.
Mott St.
Curved St.
Main St.
Broadway
Terrace
Circle St.
Town Hall
Cross St.
Broad St.
Station St.
Church St.
Dare St.
School St.
Power Company


Joachim Ave
Reservoir St
Joachim Ave
Jefferson St
St Joseph St
Lee St
Jefferson St
Vercoin St
Washington St
Spruce St
Reservoir St
Clinton Dr
Herculaneum
High School

ATTACHMENT C

CHEMICAL HAZARD INFORMATION

MATERIAL SAFETY DATA BULLETIN

MOBIL REGULAR UNLEADED GASOLINE

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: MOBIL REGULAR UNLEADED GASOLINE
SUPPLIER: MOBIL OIL CORP.
NORTH AMERICA MARKETING AND REFINING
3225 GALLOWS RD.
FAIRFAX, VA 22037

24 - Hour Emergency (call collect):	609-737-4411	
Product and MSDS Information:	800-662-4525	609-224-4644
CHEMTREC:	800-424-9300	202-483-7616

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: HYDROCARBONS AND ADDITIVES

INGREDIENTS CONSIDERED HAZARDOUS TO HEALTH:

Substance Name	Wt%
GASOLINE (8006-61-9)	100

COMPONENT(S) OF PRODUCT INGREDIENTS INCLUDE:

METHYL T-BUTYL ETHER (1634-04-4)	15
ETHANOL (64-17-5)	11
XYLENE (1330-20-7)	10
ISOPENTANE (78-78-4)	9
TOLUENE (108-88-3)	5
PSEUDOCUMENE (95-63-6)	5
BUTANE (106-97-8)	4
2-METHYLPENTANE (107-83-5)	4
PENTANE (109-66-0)	4
TRIMETHYL BENZENE (25551-13-7)	3
3-METHYLPENTANE (96-14-0)	2
BENZENE (71-43-2)	2
2,3-DIMETHYLBUTANE (79-29-8)	2
N-HEXANE (110-54-3)	2
ETHYL BENZENE (100-41-4)	2
3- METHYLHEXANE (589-34-4)	2
2- METHYLHEXANE (591-76-4)	1
METHYLCYCLOHEXANE (108-87-2)	1

NOTE: THIS MSDB ALSO COVERS REFORMULATED AND CARB PHASE 2 GASOLINE. The concentration of the components shown above may vary substantially. Because of volatility considerations, gasoline vapor may have concentrations of components very different from those of liquid gasoline. The major components of gasoline vapor are: butane, isobutane, pentane and isopentane. Federal RFG (reformulated) and Carb Phase 2 gasoline will contain oxygenates such as MTBE or ethanol at a concentration to provide a minimum oxygen content of 1.5 Wt%. The reportable component percentages, shown in the Regulatory Information section, are based on API's evaluation of a typical gasoline mixture.

See Section 15 for European Label Information.

See Section 8 for exposure limits (if applicable).

3. HAZARDS IDENTIFICATION

US OSHA HAZARD COMMUNICATION STANDARD: Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined to be hazardous.

EFFECTS OF OVEREXPOSURE: Eye irritation, respiratory irritation, dizziness, nausea, loss of consciousness. Skin irritation. Studies (sponsored by API) conducted in the U.S. examining the mortality experience (causes of death) of distribution workers with long-term exposure to gasoline have not found any gasoline-related health effects. Case reports of chronic gasoline abuse (such as gasoline sniffing) and chronic misuse of gasoline as a solvent or as a cleaning agent have reported a range of neurological effects (nervous system effects), sudden deaths from cardiac arrest (heart attacks), hematologic changes (blood effects) and leukemia. These effects are not expected to occur at exposure levels encountered in the distribution and use of gasoline as a motor fuel. Low viscosity material-if swallowed may enter the lungs and cause lung damage.

EMERGENCY RESPONSE DATA: Clear (May Be Dyed) Liquid. Extremely flammable. Vapor accumulation could flash and/or explode if in contact with open flame. DOT ERG No. -128

4. FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a physician.

SKIN CONTACT: Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

INHALATION: Remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with bag-valve-mask device or use mouth-to-mouth resuscitation.

INGESTION: Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIANS: Material if ingested may be aspirated into the lungs and can cause chemical pneumonitis. Treat appropriately.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon Dioxide, Foam, Dry Chemical, Water Fog.
SPECIAL FIRE FIGHTING PROCEDURES: Evacuate area. For large spills, fire fighting foam is the preferred agent and should be applied in sufficient quantities to blanket the gasoline surface. Water spray may be used to flush spill away from exposures, but good judgement should be practiced to prevent spreading of the gasoline into sewers, streams or drinking water supplies. If a leak or spill has not ignited, apply a foam blanket to suppress the release of vapors. If foam is not available, a water spray curtain can be used to disperse vapors and to protect personnel attempting to stop the leak.
SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Extremely flammable. Vapor accumulation could flash and/or explode if in contact with open flame. Flash Point C(F): < -40(-40) (ASTM D-56). Flammable limits - LEL: 1.4%, UEL: 7.6%.
NFPA HAZARD ID: Health: 1, Flammability: 3, Reactivity: 0
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: Report spills as required to appropriate authorities. U. S. Coast Guard regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to Coast Guard toll free number (800) 424-8802. In case of accident or road spill notify CHEMTREC (800) 424-9300.
PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Eliminate all ignition sources. Runoff may create fire or explosion hazard in sewer system. Adsorb on fire retardant treated sawdust, diatomaceous earth, etc. Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.
ENVIRONMENTAL PRECAUTIONS: Prevent spills from entering storm sewers or drains and contact with soil.
PERSONAL PRECAUTIONS: See Section 8

7. HANDLING AND STORAGE

HANDLING: NEVER SIPHON GASOLINE BY MOUTH. GASOLINE SHOULD NOT BE USED AS A SOLVENT OR AS A CLEANING AGENT. Use non-sparking tools and explosion-proof equipment. Avoid contact with skin. Avoid inhalation of vapors or mists. Use in well ventilated area away from all ignition sources. PORTABLE CONTAINERS approved for storing fuel must be placed on the ground and the nozzle must stay in contact with the container when filling to prevent build up and discharge of static electricity.
STORAGE: Drums must be grounded and bonded and equipped with self-closing valves, pressure vacuum bungs and flame arresters. Store away from all ignition sources in a cool area equipped with an automatic sprinkling system. Outside or detached storage preferred. Storage containers should be grounded and bonded.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Use in well ventilated area with local exhaust ventilation. Ventilation required and equipment must be explosion proof. Use away from all ignition sources.
RESPIRATORY PROTECTION: Approved respiratory equipment must be used when airborne concentrations are unknown or exceed the TLV.
EYE PROTECTION: If splash with liquid is possible, safety glasses with side shields or chemical goggles should be worn.
SKIN PROTECTION: Impervious gloves should be worn. Good personal hygiene practices should always be followed.

Substance Name (CAS-No)	Source	---TWA--- ppm	mg/m3	----STEL--- ppm	mg/m3	NOTE
GASOLINE (8006-61-9)	OSHA	300	900	500	1500	
	ACGIH	300	890	500	1480	
METHYL T-BUTYL ETHER (1634-04-4)	ACGIH	40	144			
ETHANOL (64-17-5)	OSHA	1000	1900			
	ACGIH	1000	1880			
XYLENE (1330-20-7)						
O, M, P, -Isomers	OSHA	100	435	150	655	
O, M, P, -Isomers	ACGIH	100	434	150	651	
ISOPENTANE (78-78-4) All Isomers	ACGIH	600	1770			
TOLUENE (108-88-3)	OSHA	100	375	150	560	
Skin	ACGIH	50	188			
PSEUDOCUMENE (95-63-6)	OSHA	25	125			
	ACGIH	25	123			
BUTANE (106-97-8)	OSHA	800	1900			
	ACGIH	800	1900			
2-METHYLPENTANE (107-83-5) Isomer of N-Hexane	ACGIH	500	1760	1000	3500	
PENTANE (109-66-0)	OSHA	600	1800	750	2250	
All Isomers	ACGIH	600	1770			
TRIMETHYL BENZENE (25551-13-7)	OSHA	25	125			
	ACGIH	25	123			
3-METHYLPENTANE (96-14-0) Isomer of N-Hexane	ACGIH	500	1760	1000	3500	

BENZENE (71-43-2)					
	OSHA	1		5	
Skin	ACGIH	0.5	1.6	2.5	8
2,3-DIMETHYLBUTANE (79-29-8)					
Isomer of N-Hexane	ACGIH	500	1760	1000	3500
N-HEXANE (110-54-3)					
	OSHA	50	180		
N-Hexane Skin	ACGIH	50	176		
Other Isomers	ACGIH	500	1760	1000	3500
ETHYL BENZENE (100-41-4)					
	OSHA	100	435	125	545
	ACGIH	100	434	125	543
3- METHYLHEXANE (589-34-4)					
	MOBIL	400	1640		
2- METHYLHEXANE (591-76-4)					
	MOBIL	400	1640		
METHYLCYCLOHEXANE (108-87-2)					
	OSHA	400	1600		
	ACGIH	400	1610		

NOTE: Limits shown for guidance only. Follow applicable regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

APPEARANCE: Liquid
COLOR: Clear (May Be Dyed)
ODOR: Gasoline
ODOR THRESHOLD-ppm: NE
pH: NA
BOILING POINT C(F): > 35(95)
MELTING POINT C(F): NA
FLASH POINT C(F): < -40(-40) (ASTM D-56)
FLAMMABILITY: NE
AUTO FLAMMABILITY: NE
EXPLOSIVE PROPERTIES: NA
OXIDIZING PROPERTIES: NA
VAPOR PRESSURE-mmHg 20 C: > 400.0
VAPOR DENSITY: 3.0
EVAPORATION RATE: NE
RELATIVE DENSITY, 15/4 C: 0.79
SOLUBILITY IN WATER: Negligible
PARTITION COEFFICIENT: NE
VISCOSITY AT 40 C, cSt: < 1.0
VISCOSITY AT 100 C, cSt: NA
POUR POINT C(F): NA
FREEZING POINT C(F): NA
VOLATILE ORGANIC COMPOUND: NE
NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.): Stable.
CONDITIONS TO AVOID: Heat, sparks, flame and build up of static electricity.
INCOMPATIBILITY (MATERIALS TO AVOID): Halogens, strong acids, alkalies, and oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide.
HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL DATA

---ACUTE TOXICOLOGY---

ORAL TOXICITY (RATS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

DERMAL TOXICITY (RABBITS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

INHALATION TOXICITY (RATS): Practically non-toxic (LC50: greater than 5 mg/l). ---Based on testing of similar products and/or the components.

EYE IRRITATION (RABBITS): Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS): Irritant. (Primary Irritation Index: 3 or greater but less than 5). ---Based on testing of similar products and/or the components.

OTHER ACUTE TOXICITY DATA: Inhalation of vapors/mists may cause respiratory system irritation. HAZARDS OF COMBUSTION PRODUCTS: Exposure to high concentrations of carbon monoxide can cause loss of consciousness, heart damage, brain damage and death. Exposure to high concentrations of carbon dioxide can cause simple asphyxiation by displacing oxygen. May be harmful or fatal if swallowed due to aspiration pneumonitis.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

90-day oral gavage studies with rats resulted in kidney effects at 1200 mg/kg MTBE, but these effects are not considered significant to humans. Thirteen week inhalation studies with rats on MTBE resulted in increased organ weights and decreased body weight and anaesthetic effects at levels > 800 ppm.

---NEUROTOXICOLOGY (SUMMARY)---

No significant adverse effects were observed at 8000 ppm MTBE in a 90-day neurotoxicity study with rats.

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

Inhalation teratology study with mice at 2700 ppm MTBE during gestation resulted in no adverse effects. Another inhalation teratology study in mice at 4000 ppm showed some developmental effects. The NOEL was 1000 ppm. Teratology studies in rats treated by inhalation (less than or equal to 2500 ppm) showed no effects on fetuses. One generation reproductive studies, dosing by inhalation at levels up to 2500 ppm, showed no adverse effects in rats. A two-generation inhalation reproductive study at 8000 ppm showed no reproductive or developmental effects in rats. A teratology inhalation study in rabbits at 8000 ppm during gestation showed no developmental effects.

---CHRONIC TOXICOLOGY (SUMMARY)---

An increased incidence of kidney and liver tumors was observed in laboratory animals exposed to > 3000 ppm MTBE. These effects are not considered significant to humans.

---SENSITIZATION (SUMMARY)---

****Skin sensitization: Negative guinea pig test.

---OTHER TOXICOLOGY DATA---

Gasoline and Refinery Streams: Studies conducted by the American Petroleum Institute examined a reference unleaded gasoline for

mutagenic, teratogenic and sensitization potential; no evidence of these hazards was found. However, isolated constituents of gasoline may display these or other potential hazards in laboratory tests. There were no significant adverse effects in three-month subchronic inhalation studies in rats or monkeys, or in a two-year skin cancer study in mice. Studies with laboratory animals have shown that gasoline vapors administered at high concentrations over a prolonged period of time caused kidney damage and kidney cancer in male rats and liver cancer in female mice. The kidney tumors resulted from formation of a compound unique to male rats and is not considered relevant to humans. The relationship of liver cancer in mice to humans is not known. Studies carried out by Mobil's Environmental and Health Sciences Laboratory on some of the major refinery streams from which gasoline is formulated support the results of the API studies. There was no evidence of significant adverse systemic or reproductive effects for light catalytic cracked naphthas and reformed naphthas. Components: Gasoline consists of a complex blend of petroleum/processing derived paraffinic, olefinic, naphthenic and aromatic hydrocarbons which include up to 5% benzene (with 1-2% typical in the U.S.), n-hexane, mixed xylenes, toluene, ethylbenzene and trimethyl benzene. Repeated exposures to low levels of benzene have been reported to result in blood abnormalities including anemia and, in rare cases, leukemia in both animals and humans. Prolonged exposure to n-hexane may result in nervous system damage, including numbness of the extremities and, in extreme cases, paralysis. The adverse effects associated with these components have not been observed in studies with gasoline or the refinery streams from which it is formulated. Generally, human exposures to gasoline vapors are considerably less than those used in the animal toxicity studies. As far as scientists know, low level or infrequent exposures to gasoline vapor are unlikely to be associated with cancer or other serious diseases in humans.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS: Not established.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning for fuel value in compliance with applicable laws and regulations.

RCRA INFORMATION: Disposal of unused product may be subject to RCRA regulations (40 CFR 261) due to the characteristic(s)/chemical(s) listed below. Disposal of the used product may also be regulated due to ignitability, corrosivity, reactivity, or toxicity as determined by the Toxicity Characteristic Leaching Procedure (TCLP).

BENZENE: 2 3200 PCT (TCLP)
FLASH: < -4 (-40) C(F)

14. TRANSPORT INFORMATION

USA DOT:

SHIPPING NAME:	Gasoline
HAZARD CLASS & DIV:	3
ID NUMBER:	UN1203
ERG NUMBER:	128
PACKING GROUP:	PG II
STCC:	NE
DANGEROUS WHEN WET:	No
POISON:	No
LABEL(s):	Flammable Liquid
PLACARD(s):	Flammable
PRODUCT RQ:	NA
MARPOL III STATUS:	NA

RID/ADR:

HAZARD CLASS:	3
HAZARD SUB-CLASS:	3(b)
LABEL:	3
DANGER NUMBER:	33
UN NUMBER:	1203
SHIPPING NAME:	Hydrocarbons, liquid having a flash point below 21deg C
REMARKS:	NA

IMO:

HAZARD CLASS & DIV:	3.1
UN NUMBER:	1203
PACKING GROUP:	PG II
SHIPPING NAME:	Gasoline
LABEL(s):	Flammable Liquid
MARPOL III STATUS:	NA

ICAO/IATA:

HAZARD CLASS & DIV:	3
ID/UN Number:	1203
PACKING GROUP:	PG II
SHIPPING NAME:	Gasoline
SUBSIDIARY RISK:	NA
LABEL(s):	Flammable Liquid

MATE RIAL SAFETY DATA BULLETIN

NO. 2 DIESEL FUEL (0.05 WT% S)

1. PRODUCT AND C(MPANY IDENTIFICATION

PRODUCT NAME: NO. 2 DIE EL FUEL (0.05 WT% S)
SUPPLIER: MOBIL OIL COR .
NORTH AMERICA MARKETING AND REFINING
3225 GALLOWS D.
FAIRFAX, VA 22037 ·

24 - Hour Emergency (ca l collect):	609-737-4411	
Product and MSDS Inform tion:	800-662-4525	856-224-4644
CHEMTREC:	800-424-9300	202-483-7616

2. COMPOSITION/INF ORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNOI YMS: HYDROCARBONS AND ADDITIVES

INGREDIENTS CONSIDERED I AZARDOUS TO HEALTH:

Substance Name	Wt%
DIESEL FUEL (68334-30- 5)	100

See Section 15 for Euro ean Label Information.

See Section 8 for expos ire limits (if applicable).

3. HAZARDS IDENTIF CATION

US OSHA HAZARD COMMUNIC/ TION STANDARD: Product assessed in accordance with OSHA 29 CFR 1(0.1200 and determined to be hazardous.

EFFECTS OF OVEREXPOSURE: Respiratory irritation, dizziness, nausea, loss of consciousne s. Prolonged, repeated skin contact may result in skin irri ation or more serious skin disorders. Low viscosity material- f swallowed may enter the lungs and cause lung damage. Note: This product contains polycyclic aromatic hydrocarbons, some f which have been reported to cause skin cancer in humans un ler conditions of poor personal hygiene, prolonged repeated ontact, and exposure to sunlight. Toxic effects are unlikel to occur if good personal hygiene is practiced.

EMERGENCY RESPONSE DATA: Clear (May Be Dyed) Liquid. Material is combustible. DOT E G No. -128

4. FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a physician.

SKIN CONTACT: Remove contaminated clothing. Dry wipe exposed skin and cleanse yourself with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further contact to yourself or others. Wear impervious gloves. Launder contaminated clothing separately before reuse. Discard contaminated articles that cannot be laundered.

INHALATION: Remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with bag-valve-mask device or use mouth-to-mouth resuscitation.

INGESTION: Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIANS: Material if aspirated into the lungs may cause chemical pneumonitis. Treat appropriately.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon dioxide, foam, dry chemical and water fog.

SPECIAL FIRE FIGHTING PROCEDURES: Use water to keep fire exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Water spray may be used to flush spills away from exposures. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Material is combustible. Flash Point C(F): > 52(125) (ASTM D-93). Flammable limits - LEL: 0.6%, UEL: 7.0%.

NFPA HAZARD ID: Health: 1, Flammability: 2, Reactivity: 0

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: Report spills as required to appropriate authorities. U. S. Coast Guard regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to Coast Guard toll free number (800) 424-8802. In case of accident or road spill notify CHEMTREC (800) 424-9300.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Adsorb on fire retardant treated sawdust, diatomaceous earth, etc. Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.

ENVIRONMENTAL PRECAUTIONS: Prevent spills from entering storm sewers or drains and contact with soil.

PERSONAL PRECAUTIONS: See Section 8

7. HANDLING AND STORAGE

HANDLING: Harmful in contact with or if absorbed through the skin. Avoid inhalation of vapors or mists. PORTABLE CONTAINERS approved for storing fuel must be placed on the ground and the nozzle must stay in contact with the container when filling to prevent build up and discharge of static electricity.
STORAGE: Store in a cool area. A flammable atmosphere can be produced in storage tank headspaces even when stored at a temperature below the flashpoint. Monitor and maintain headspace gas concentrations below flammable limits. Ensure that there are no ignition sources in the area immediately surrounding filling and venting operations. Avoid sparking conditions. Ground and bond all transfer equipment. Store in a cool area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Use in well ventilated area. Ventilation desirable and equipment should be explosion proof.
RESPIRATORY PROTECTION: No special requirements under ordinary conditions of use and with adequate ventilation.
EYE PROTECTION: If splash with liquid is possible, chemical type goggles should be worn.
SKIN PROTECTION: Impervious gloves must be worn. If contact is likely oil impervious clothing must be worn.
EXPOSURE LIMITS: This product does not contain any components which have recognized exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

APPEARANCE: Liquid
COLOR: Clear (May Be Dyed)
ODOR: Hydrocarbon
ODOR THRESHOLD-ppm: NE
pH: NA
BOILING POINT C(F): > 149(300)
MELTING POINT C(F): NA
FLASH POINT C(F): > 52(125) (ASTM D-93)
FLAMMABILITY: NE
AUTO FLAMMABILITY: NE
EXPLOSIVE PROPERTIES: NA
OXIDIZING PROPERTIES: NA
VAPOR PRESSURE-mmHg 20 C: 0.5
VAPOR DENSITY: > 2.0
EVAPORATION RATE: NE
RELATIVE DENSITY, 15/4 C: 0.82-0.87
SOLUBILITY IN WATER: Negligible
PARTITION COEFFICIENT: NE
VISCOSITY AT 40 C, cSt: > 10
VISCOSITY AT 100 C, cSt: NE
POUR POINT C(F): < -7(20)
FREEZING POINT C(F): NE
VOLATILE ORGANIC COMPOUND: NE
NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.): Stable.
CONDITIONS TO AVOID: Heat, sparks, flame and build up of static electricity.
INCOMPATIBILITY (MATERIALS TO AVOID): Halogens, strong acids, alkalies, and oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide.
HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL DATA

---ACUTE TOXICOLOGY---

ORAL TOXICITY (RATS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

DERMAL TOXICITY (RABBITS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

INHALATION TOXICITY (RATS): Practically non-toxic (LC50: greater than 5 mg/l). ---Based on testing of similar products and/or the components.

EYE IRRITATION (RABBITS): Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS): Practically non-irritating. (Primary Irritation Index: greater than 0.5 but less than 3). ---Based on testing of similar products and/or the components.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

Repeated dermal application to rats for 13 weeks was carried out with aromatic oils similar to some of the components of this product. Resulting effects included increased mortality and decreased body and thymus weights. Severe skin irritation was also observed at the site of application.

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

Repeated dermal application to pregnant rats was carried out using aromatic oils similar to some of the components used in this product. Results included maternal toxicity, decreased fetal body weights and decreased fetal survival in some cases. No fetal malformations were observed.

---CHRONIC TOXICOLOGY (SUMMARY)---

Expected to be carcinogenic in lifetime mouse skin painting bioassays.

---OTHER TOXICOLOGY DATA---

Skin cleansing studies with aromatic oils show that toxic effects are not likely to occur in humans if good personal hygiene practices are used. Overexposure to diesel exhaust fumes may result in eye irritation, headaches, nausea, and respiratory irritation. Animal studies involving lifetime exposure to high levels of diesel exhaust have produced variable results, with some studies indicating a potential for lung cancer. Limited evidence from epidemiological studies suggest an association between long-term occupational exposure to diesel engine emissions and lung cancer. Diesel engine exhaust typically consists of gases and particulates, including carbon dioxide, carbon monoxide, nitrogen compounds, oxides of sulfur, and hydrocarbons. Diesel exhaust composition will vary with fuel, engine type, load cycle, engine maintenance, tuning and exhaust gas treatment. Use of adequate ventilation and/or respiratory protection in the presence of diesel exhaust is recommended to minimize exposures.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS: Not established.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning for fuel value in compliance with applicable laws and regulations.

RCRA INFORMATION: Disposal of unused product may be subject to RCRA regulations (40 CFR 261). Disposal of the used product may also be regulated due to ignitability, corrosivity, reactivity, or toxicity as determined by the Toxicity Characteristic Leaching Procedure (TCLP).

FLASH: > 52 (125) C(F)

14. TRANSPORT INFORMATION

NOTE:The flash point of this material is > 125F. Regulatory classifications vary as follows:

DOT: Flammable Liquid OR Combustible Liquid - (49CFR 173.120(b)(2))
OSHA: Combustible Liquid
IATA/IMO: Flammable Liquid

USA DOT:

SHIPPING NAME:	Diesel Fuel
HAZARD CLASS & DIV:	COMBUSTIBLE LIQUID
ID NUMBER:	NA1993
ERG NUMBER:	128
PACKING GROUP:	PG III
STCC:	NE
DANGEROUS WHEN WET:	No
POISON:	No
LABEL(s):	NA
PLACARD(s):	Combustible
PRODUCT RQ:	NA
MARPOL III STATUS:	NA

In accordance with 49 CFR 173.150(f)(2), non-bulk quantities of this material (<119 gallons per container) may be shipped as non regulated for USA domestic shipments.

RID/ADR:

HAZARD CLASS:	3
HAZARD SUB-CLASS:	31(c)
LABEL:	3
DANGER NUMBER:	30
UN NUMBER:	1202
SHIPPING NAME:	Gas Oil
REMARKS:	NA

IMO:

HAZARD CLASS & DIV:	3.3
UN NUMBER:	1202
PACKING GROUP:	PG III
SHIPPING NAME:	Gas Oil
LABEL(s):	Flammable Liquid
MARPOL III STATUS:	NA

ICAO/IATA:

HAZARD CLASS & DIV:	3
ID/UN Number:	1202
PACKING GROUP:	PG III
SHIPPING NAME:	Gas Oil
SUBSIDIARY RISK:	NA
LABEL(s):	Flammable Liquid

15. REGULATORY INFORMATION

Governmental Inventory Status: All components comply with TSCA, and EINECS/ELINCS.

EU Labeling:

Symbol: Xn Harmful.

Risk Phrase(s): R10-40-65.
Flammable. Possible risks of irreversible effects. Harmful: may cause lung damage if swallowed.

Safety Phrase(s): S24-2-36/37-61-62.
Avoid contact with skin. Keep out of the reach of children. Wear suitable protective clothing and gloves. Avoid release to the environment. Refer to special instructions/Safety data sheets. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Contains: Gas oil - unspecified.

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III:
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) REPORTABLE HAZARD CATEGORIES:
FIRE CHRONIC ACUTE

This product contains the following SARA (313) Toxic Release Chemicals:

CHEMICAL NAME	CAS NUMBER	CONC.
POLYNUCLEAR AROMATIC HYDROCARBONS(COMPONENT ANALYSIS)		0.1%

The following product ingredients are cited on the lists below:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
DIESEL OIL..C9-20	68334-30-5	21, 26

--- REGULATORY LISTS SEARCHED ---

1=ACGIH ALL	6=IARC 1	11=TSCA 4	16=CA P65 CARC	21=LA RTK
2=ACGIH A1	7=IARC 2A	12=TSCA 5a2	17=CA P65 REPRO	22=MI 293
3=ACGIH A2	8=IARC 2B	13=TSCA 5e	18=CA RTK	23=MN RTK
4=NTP CARC	9=OSHA CARC	14=TSCA 6	19=FL RTK	24=NJ RTK
5=NTP SUS	10=OSHA Z	15=TSCA 12b	20=IL RTK	25=PA RTK
				26=RI RTK

Code key: CARC=Carcinogen; SUS=Suspected Carcinogen; REPRO=Reproductive

16. OTHER INFORMATION

Precautionary Label Text:

CONTAINS DIESEL OIL.. C9-20

WARNING!

COMBUSTIBLE LIQUID AND VAPOR. MAY CAUSE NOSE, THROAT AND LUNG IRRITATION, DIZZINESS, NAUSEA, LOSS OF CONSCIOUSNESS. LOW VISCOSITY MATERIAL IF SWALLOWED, MAY BE ASPIRATED AND CAN CAUSE SERIOUS OR FATAL LUNG DAMAGE.

MAY CAUSE SKIN CANCER IN PROLONGED, REPEATED SKIN CONTACT. ANIMAL SKIN ABSORPTION STUDIES RESULTED IN INCREASED MORTALITY, EFFECTS ON BODY WEIGHT, THE IMMUNE SYSTEM AND THE UNBORN CHILD. PROLONGED, REPEATED SKIN CONTACT MAY CAUSE IRRITATION. DIESEL EXHAUST IS SUSPECT OF CAUSING LUNG CANCER.

Keep away from heat and flame. Avoid prolonged or repeated overexposure by skin contact or inhalation. Use with adequate ventilation. Keep container closed. Keep out of reach of children. Approved portable containers must be properly grounded when transferring fuel.

FIRST AID: If inhaled, remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a bag-valve-mask device or use mouth-to-mouth resuscitation. In case of contact, remove contaminated clothing. Dry wipe the exposed skin and cleanse with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further skin contact to yourself and others. Wear impervious gloves. If swallowed, seek immediate medical attention. Do not induce vomiting. Only induce vomiting at the instruction of a physician.

Empty container may contain product residue, including flammable or explosive vapors. Do not cut, puncture, or weld on or near container. All label warnings and precautions must be observed until container has been thoroughly cleaned or destroyed.

Chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm are created by the combustion of this product. Refer to product Material Safety Data Bulletin for further safety and health information.

USE: DIESEL FUEL

NOTE: MOBIL PRODUCTS ARE NOT FORMULATED TO CONTAIN PCBS.

INGREDIENT DESCRIPTION	PERCENT	CAS NUMBER
DIESEL OIL..C9-20	100	68334-30-5

****

For Internal Use Only: MHC: 1* 1* 1* 1* 1*, MPPEC: C, TRN: 171009-00, CMCS97: 977903, REQ: US - MARKETING, SAFE USE: C
EHS Approval Date: 01SEP1998

****

Information given herein is offered in good faith as accurate, but

without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and WE EXPRESSLY DISCLAIM ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN RESPECT TO THE USE OR SUITABILITY OF THE PRODUCT. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, republication or retransmission of this document, in whole or in part, is not permitted. Mobil assumes no responsibility for accuracy of information unless the document is the most current available from an official Mobil distribution system. Mobil neither represents nor warrants that the format, content or product formulas contained in this document comply with the laws of any other country except the United States of America.

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END OF DOCUMENT

ATTACHMENT D

PERSONAL PROTECTIVE EQUIPMENT
AND
RESPIRATORY PROTECTION SOP'S

RESPIRATORY PROTECTION

General Guidelines

[1] All personnel required to use respirators will select and use the respirators based upon guidelines established by OSHA, NIOSH, and the ERLLC Respiratory Protection Program.

[2] All individuals required to wear respirators will have received a documented pre-issue qualitative fit test for the MSA full-face.

[3] Each individual will be responsible for conducting a positive/negative fit check each time the respirator is donned.

[4] Each individual shall be responsible for cleaning his/her own respirator at least once daily and is permitted to leave the work area to wash his/her own respirator as needed.

[5] Cartridges or filters shall be changed after each daily use or whenever an increase in breathing resistance/odor is detected, or if they become wet. All changes will be made in uncontaminated areas.

[6] No ERLLC employee shall wear a respirator until he/she has been examined by a physician and determined to be physically able to wear respiratory protection. This examination shall be documented at the site.

[7] All personnel must be qualitatively fit test every six months.

Air Purifying Respirator Inspection and Checkout

[1] Visually inspect the entire unit for any obvious damages, defects, or deteriorated rubber.

[2] Make sure the facepiece harness is not damaged.

[3] Inspect lens for damage and proper seal in facepiece.

[4] Exhalation Valve
Pull off plastic cover and check valve for debris, tears, or deformities in the neoprene valve.

[5] Inhalation Valve
Screw off cartridges/canister and visually inspect neoprene valves for tears. Make sure than inhalation valves and cartridge receptacle gaskets are in place.

[6] Insure that the speaking diaphragm retainer ring is hand tight.

[7] Make sure than you have the correct cartridge.

[8] Don and perform positive and negative pressure check.

Storage of Air Purifying Respirators

[1] OSHA requires that respirators be stored to protect against:

* Dust
* Sunlight
* Heat
* Extreme Cold
* Excessive Moisture
* Damaging Chemicals
* Mechanical Damage

[2] Respirators must be stored in a clean area which is not likely to be contaminated by the work in progress.

[3] Respirators should not be hung from their headbands for prolonged periods of time.

SCBA Inspection and Checkout

[1] Monthly Inspection

a. check cylinder label for current hydrostatic test date
b. inspect cylinder for large dent or gouges
c. inspect cylinder gauge for damage
d. complete routine inspection
e. fill out inspection documentation card

[2] Routine Inspection

a. Pre-Operational
   * high-pressure hose connector is tight on cylinder fitting
   * by-pass valve is closed
   * mainline valve is closed
   * regulator outlet is not covered or obstructed

b. Backpack and Harness Assembly
   * inspect backpack/harness straps for wear, damage, secure
   * check wear and function of belts
   * check backplate and cylinder holder for damage

c. Cylinder and High Pressure Hose Assembly
   * check cylinder to insure firmly attached to backplate
   * open cylinder valve; listen or feel for leakage around packing and hose connection
   * check high pressure hose for damage or leaks

d. Regulator
   * cover regulator outlet with palm of hand
   * open mainline valve
   * remove hand from regulator outlet
   * open by-pass valve slowly to assure proper function
   * close by-pass valve
   * open mainline valve
   * note pressure reading on regulator gauge
   * close cylinder valve while keeping hand over regulator outlet
   * slowly remove hand from outlet and allow air to flow

* note pressure when low pressure warning alarm sounds; it should be 550-650 psi
* close mainline valve
* check regulator for leaks by blowing air into regulator for 5-10 seconds
* draw air from outlet for 5-10 seconds
* if a positive pressure or vacuum cannot be maintained, there is a leak.

e. Facepiece & Corrugated Breathing Hose
* inspect head harness and facepiece for damage, serrations, and deteriorated rubber
* inspect lens for damage and proper seal in facepiece
* inspect exhalation valve for damage and dirt buildup
* stretch breathing hose and carefully and inspect for holes and deterioration
* inspect connector for damage and presence of washer
* perform negative pressure test with facepiece donned

f. Storage
* refill cylinder to 2216 psi
* close cylinder valve
* tightly connect high pressure hose to cylinder
* bleed pressure from high pressure hose by opening mainline valve
* close by-pass valve
* close mainline valve
* fully extend all straps
* store facepiece in a clean plastic bag for protection

ATTACHMENT E

~~ALCOHOL AND DRUG PROCEDURES~~

ATTACHMENT F

HEAVY EQUIPMENT

ATTACHMENT G

EXCAVATION

ATTACHMENT Z

SITE SAFETY PLAN

ACKNOWLEDGMENT FORM

SITE SAFETY PLAN ACKNOWLEDGMENT FORM

I have been informed and understand and will abide by the procedures set forth in the Safety and Health Plan and Amendments for the Herculaneum Residential Lead Site.

Printed Name	Signature	Representing	Date
Jim DAVIS		ERLLC	9/20/01
Cecil Lawson		ERLLC	9/20/01
Jim Black		ERLLC	9/20/01
Stephen Boyer		ERLLC	9/20/01
Jeff Becker		ERLLC	9-20-01
Michael Gipson		ERLLC	9-20-01
Kevin Ham		ERLLC	9-20-01
Larry Hopkins		The Doe Run Co	9-20-01
Gary L. Walker		The Doe Run Co	9/20/01